

MIT Professional Education

MIT Professional Education (MIT PE) marked its 19th year of operation as the School of Engineering's umbrella organization for MIT non-degree professional education programs aimed at engineering and technology professionals globally. All MIT PE programs (Short Programs, Digital Plus Programs, International Programs, Custom Programs, and the Advanced Study Program) deliver practitioner-oriented learning benefits to working professionals and organizations, adhering to MIT's motto *mens et manus* and enhancing the Institute's leadership and influence globally. Teaching in MIT PE programs allows participating faculty members to enhance connections with the global practitioner community and influences their research and the content of their courses for degree students at MIT. MIT PE faculty come from all schools across MIT.

Goals, Objectives, and Priorities

Principles that guide MIT PE activities include the following:

- Meet current learning needs of technology professionals globally with MIT faculty expertise via a range of learning options that enhance access to learners worldwide
- Extend knowledge from MIT research and discoveries to industry professionals, particularly knowledge aligning with Institute initiatives and priority areas (such as innovation, the MIT Task Force on the Work of the Future, and climate change)
- Maintain a relatively small but entrepreneurial organization that is driven by customer satisfaction and generates high net revenue
- Deliver sizable surplus revenues to the Institute (via the Office of the Provost) and the School of Engineering for discretionary purposes that include funding parts of new faculty start-up packages
- Expand global outreach with a strategic emphasis on supporting learning needs in emerging markets and markets with MIT connections and aspirations
- Continue to accelerate and integrate digital learning across all programs (in addition to MIT PE's online blended programs offered through Digital Plus Programs)
- Collaborate with internal and external partners and associations to provide diverse offerings to a broad spectrum of professionals and organizations globally
- Increase diversity among our learners and reduce traditional barriers to access such as geography, language, gender, and cost

Accomplishments and Program Developments

The need to pivot to remote learning for all education programs resulted in a dramatic increase in the growth of MIT PE's online hybrid programs, while other programs adapted to the new environment. As was the case last year, MIT PE continued to emphasize the importance of human skills such as leadership and communication in addition to the enhancement of technical skills for technology and engineering practitioners.

MIT PE's long-time focus on increasing diversity among those we serve is accelerating and achieving results, with greater participation of women, speakers of languages other than English, and people of color in our programs.

A combination of new course offerings, expansion of digital delivery (due to COVID-19) including live virtual teaching, and concentrated global outreach continued to attract a great number of organizations and individual participants to MIT PE's offerings.

Digital Plus Programs

In a year of unprecedented disruption, MIT Professional Education's Digital Plus Programs (DPP) achieved record-breaking growth. By expanding online learning strategies and programs, DPP grew enrollment by 140% in 2020—breaking down traditional barriers to provide the best of MIT to more than 12,000 professionals around the world.

Because of the technology, educational methodology, and course design, MIT Professional Education's digital programs receive student satisfaction rates close to 90% and completion rates above 90%—significantly higher than other institutions and industry averages.

In addition to English and Spanish, DPP introduced courses and professional certificates in Portuguese, Italian, and French, a first for MIT. The programs are specially tailored for non-English-speaking regions around the world, and the online platforms enable a wide audience of global professionals to access the latest insights and research from MIT.

Programs launched through DPP are helping to close the gender gap. When DPP first launched in 2018, 15% of enrollees in the first course were female. In 2020, the percentage of female learners increased to an average of 30%, with some courses attracting close to 40%, as compared with an industry average of 25% for science, technology, engineering, and mathematics (STEM) courses. In June 2021, a new course on sustainability drew a majority of women in both languages offered (59% for the English course and 56% for the Spanish version), while the course on leadership in innovation drew a 38% female participation rate in each of the English, Spanish, and Portuguese versions.

The expanding portfolio of digital learning offerings included three new online courses and two professional certificate programs available in multiple languages. New offerings included Cultural Awareness for Global Business, Beyond IoT: Sensory Intelligence and Smart Technology, and Designing Product Families: From Strategy to Implementation. Two new certificates in multiple languages were introduced: the Professional Certificate Program in Digital Transformation and the Professional Certificate Program in Legal Tech in the Digital Era in collaboration with Esade Law School, Spain's top private university for law and business.

Short Programs

Building upon the successful pivot to and delivery of live virtual programs in summer 2020, Short Programs (SP) continued offering live virtual courses in the fall, including Ethics of AI: Safeguarding Humanity with Bernhardt Trout, in which 50% of participants were female.

Short Programs created a “second season” of five live virtual offerings during Independent Activities Period in January 2021 with participants from 18 countries and an overall female participation rate of 26%. Three new artificial intelligence (AI) courses were launched to meet the surge in market demand for AI strategy, smart algorithms, and training for industry-specific applications: The new courses were Advanced Reinforcement Learning, Data Science Strategies for Real Estate Development, and AI Strategies and Roadmap: Systems Engineering Approach to AI Development and Deployment.

Acting upon the vision of MIT PE’s executive director to offer a joint MIT and Harvard course, Short Programs collaborated with the MIT Center for Real Estate and Harvard Medical School to deliver a highly topical course, *Developing Health-Centered Communities: The Next Revolution in Real Estate*, in April 2021. The program brought together faculty from MIT and Harvard, top researchers, architects, urban planners, and real estate professionals along with physicians, epidemiologists, and health technology entrepreneurs to help participants gain a strategic vision of how professionals in health care and the built environment can work together to build projects that create value, promote healthy living, support aging in place, and have a positive impact on the future of living. Women accounted for 57% of participants in the program, and 41% of the participants were international.

In summer 2021, SP’s live virtual courses provided greater access to participants and resulted in increased participant diversity while allowing continued acceleration, innovation, and experimentation with live virtual delivery by faculty. Participation rates began recovering from the effects of COVID-19 in summer 2020, doubling in summer 2021 with participants from 30 countries and a participation rate of 32% among women. Participant satisfaction ratings were high: course ratings averaged 4.62 out of 5, and interactions with Short Programs staff were rated 5 out of 5. Not surprising in a pandemic environment, highly attended courses included *Formulations and Stabilization of Biotherapeutics* and *Crisis Management and Business Resiliency*. Other well-attended courses included *Machine Learning for Big Data and Text Processing* and *Nuclear Plant Safety*.

International Programs

In 2021, International Programs launched the Applied Data Science Program in collaboration with an external learning partner, Great Learning. With a curriculum developed and taught by MIT faculty, the 12-week live virtual program offers participants the ability to upgrade their data analytics skills by learning the theory and practical application of supervised and unsupervised learning, time-series analysis, neural networks, recommendation engines, regression, and computer vision.

Custom Programs

MIT PE’s collaboration with long-standing corporate client Accenture through Custom Programs expanded in two ways this year. First, the Master Data Architect Certificate Program grew significantly in its third year, reaching the goal of 1,000 certified data architects ahead of schedule, and kicking off FY2021 with 1,225 data experts equipped with crucial skills to power successful cloud transformations. Second, MIT PE joined departments, labs, and centers across MIT to support a new MIT-wide education program, The MIT and Accenture Convergence Initiative for Industry and Technology.

MIT PE delivered a five-week, 30-hour program helping participants including Accenture senior executives navigate a “collision experiment” on how to deliver on the promise of technology and human ingenuity.

In addition, through Custom Programs, Professional Education shepherded a unique collaboration with the US Special Operations Command (USSOCOM), with nearly 300 government and military members participating in a six-week AI and machine learning online “crash course.” The course, a collaboration among USSOCOM, the MIT School of Engineering, and MIT Professional Education, explored the next generation of artificial intelligence and related technologies. The course included best-practice guidance for wielding AI in ways that are ethical and responsible and that strive to limit and eliminate bias. Distinguished speakers and leaders across industry participated, including General Richard D. Clarke, commander of USSOCOM; Rafael Reif, president of MIT; and the former chair and CEO of Google, Eric Schmidt.

Advanced Study Program

The fall 2020 semester of the Advanced Study Program (ASP) was the first time ASP students attended MIT courses entirely in a digital environment. While the program experienced a drop in applications for the fall semester along with cancellation rates higher than normal due to COVID-19, the spring semester saw a rebound, with an increase in applications as people became more comfortable with digital learning. This more challenging environment for collaboration did not prevent the innovation of three Norwegian students who met through the ASP program. In 2020, in response to the COVID-19 pandemic, they teamed up to improve medical supply chains in their home country by founding a start-up company to transport biological samples using autonomous vehicles, a much-needed service that will extend far beyond the Covid era.

National Recognition

MIT Professional Education executive director Bhaskar Pant was honored by the University Professional and Continuing Education Association (UPCEA)—a leading association for professional, continuing, and online education—as the winner of the first-ever national UPCEA Leadership in Diversity and Inclusive Excellence Award. This award recognizes outstanding accomplishment by an individual who represents “best practices and demonstrates a positive impact in promoting a cultural shift in the organization that promotes diversity and inclusive excellence.”

Funding

MIT PE continues to be a wholly self-sustaining entity, contributing significant surplus revenues (after payments to participating MIT faculty members) to the Office of the Provost and the School of Engineering for discretionary spending.

Challenges and Prospective Solutions

In the words of a Short Programs participant in summer 2021, “The virtual class was fine, but impossible to compare with the campus experience.” This fairly widely shared perspective will be taken into account as we look at offering a mix of in-person and remote courses in FY2022, circumstances permitting.

COVID-19 has accelerated the creation and adoption of online learning globally, with more offerings appearing from a myriad of organizations, including from within MIT. This will create an increasingly complex and competitive marketplace within which to differentiate MIT PE's digital offerings.

Personnel

Donna Symolon joined MIT PE as human resources administrator, Daniela Huynh from Quincy College joined as digital marketing specialist, and Lindsey Narron assumed the position of program associate for Short Programs. Patricia Casey was promoted to director of finance, administration and human resources, while Myriam Joseph advanced to assistant director, marketing and business development.

Bhaskar Pant
Executive Director